

In The Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended) A method of bonding two components, the method comprising:
positioning the two components relative to one another to obtain a desired orientation;
and
after positioning the two components, bonding the two components in the desired orientation with metal wherein a temperature of both components is maintained below a melting temperature of the metal while bonding wherein bonding comprises plating the metal on the two positioned components.
2. (original) A method according to Claim 1 wherein a first one of the components comprises a substrate and wherein a second one of the components comprises an optical component.
3. (original) A method according to Claim 1 wherein bonding comprises electroplating the metal on the two components.
4. (original) A method according to Claim 1 wherein bonding comprises electroless plating the metal on the two components.
5. (currently amended) ~~A method according to Claim 1~~ A method of bonding two components, the method comprising:
positioning the two components relative to one another to obtain a desired orientation;
and
bonding the two components in the desired orientation with metal wherein a temperature of both components is maintained below a melting temperature of the metal while bonding

wherein bonding comprises providing an electrophoretic coating on the two components wherein the electrophoretic coating comprises the metal and dielectric particles.

Claim 6 (canceled).

7. (currently amended) ~~A method according to Claim 6~~ A method of bonding two components, the method comprising:

positioning the two components relative to one another to obtain a desired orientation;
and

bonding the two components in the desired orientation with metal wherein a temperature of both components is maintained below a melting temperature of the metal while bonding;
wherein bonding comprises providing particles of the metal on the two components and bonding the metal particles;

wherein each of the particles of the metal comprises a dielectric material coated with the metal before bonding the two components.

8. (currently amended) A method according to ~~Claim 6~~ Claim 15 wherein bonding the metal particles comprises allowing diffusion between the metal particles.

9. (original) A method according to Claim 8 wherein the metal comprises a metal having a relatively high diffusion rate at room temperature.

10. (original) A method according to Claim 9 wherein the metal comprises Indium.

11. (original) A method according to Claim 8 wherein providing the particles of the metal comprises providing the particles of the metal with a dielectric coating thereon and wherein bonding the metal particles is preceded by rupturing the dielectric coatings.

12. (currently amended) ~~A method according to Claim 11~~ A method of bonding two components, the method comprising:

positioning the two components relative to one another to obtain a desired orientation;
and
bonding the two components in the desired orientation with metal wherein a temperature
of both components is maintained below a melting temperature of the metal while bonding;
wherein bonding comprises providing particles of the metal with a dielectric coating
thereon on the two components and bonding the metal particles;
wherein bonding the metal particles includes rupturing the dielectric coatings by ~~wherein~~
~~rupturing the dielectric coatings comprises~~ passing an electric current through the particles.

Claims 13-14 (canceled).

15. (currently amended) ~~A method according to Claim 8~~ A method of bonding two
components, the method comprising:
positioning the two components relative to one another to obtain a desired orientation;
and
bonding the two components in the desired orientation with metal wherein a temperature
of both components is maintained below a melting temperature of the metal while bonding;
~~wherein bonding comprises wherein providing the particles of the metal comprises~~
providing the particles of the metal with a coating of a solid material that sublimes at a bonding
temperature less than the melting temperature of the metal on the two components and bonding
the metal particles.

16. (original) A method according to Claim 15 wherein the solid material comprises one
of naphthalene or carbon dioxide.

17. (original) A method according to Claim 8 wherein providing the particles of the
metal comprises providing the particles of the metal with a diffusion barrier thereon and wherein
bonding the metal particles is preceded by rupturing the diffusion barrier.

18. (currently amended) A method of bonding two components, the method comprising:

positioning the two components relative to one another to obtain a desired orientation;
and

bonding the two components in the desired orientation with metal wherein a temperature of both components is maintained below a melting temperature of the metal while bonding;

wherein bonding comprises providing particles of the metal on the two components and bonding the metal particles; and

wherein providing the particles of the metal comprises vibrating the metal particles apart from the two components, and after positioning the components, applying the metal particles to the two components.

19. (currently amended) A method of bonding two components, the method comprising:
positioning the two components relative to one another to obtain a desired orientation;
and

bonding the two components in the desired orientation with metal wherein a temperature of both components is maintained below a melting temperature of the metal while bonding;

wherein bonding comprises providing particles of the metal on the two components and bonding the metal particles; and

wherein bonding the metal particles comprises passing an electrical current through the metal particles sufficient to weld interfaces thereof.

20. (currently amended) A method of bonding two components, the method comprising:
positioning the two components relative to one another to obtain a desired orientation;
and

bonding the two components in the desired orientation with metal wherein a temperature of both components is maintained below a melting temperature of the metal while bonding;

wherein bonding comprises providing particles of the metal on the two components and bonding the metal particles; and

wherein providing the metal particles comprises providing the metal particles in a foam and wherein bonding the metal particles comprises collapsing the foam.

21. (currently amended) A method of bonding two components, the method comprising:
positioning the two components relative to one another to obtain a desired orientation;
and
bonding the two components in the desired orientation with metal wherein a temperature
of both components is maintained below a melting temperature of the metal while bonding;
wherein bonding comprises providing particles of the metal on the two components and
bonding the metal particles; and
wherein bonding the metal particles comprises introducing a liquid species that
amalgamates with the particles at a bonding temperature less than the melting temperature of the
metal.

22. (original) A method according to Claim 21 wherein the metal comprises silver and
the liquid species comprises mercury.

23. (currently amended) A method of bonding two components, the method comprising:
positioning the two components relative to one another to obtain a desired orientation;
and
bonding the two components in the desired orientation with metal wherein a temperature
of both components is maintained below a melting temperature of the metal while bonding;
wherein bonding comprises providing particles of the metal on the two components and
bonding the metal particles; and
wherein bonding the metal particles comprises corroding the metal particles.

24. (original) A method according to Claim 23 wherein corroding the metal particles
comprises oxidizing the metal particles.

25. (original) A method according to Claim 24 wherein corroding the metal particles
comprises galvanically corroding the metal particles.

26. (currently amended) A method of bonding two components, the method comprising:

positioning the two components relative to one another to obtain a desired orientation;
and

bonding the two components in the desired orientation with metal wherein a temperature of both components is maintained below a melting temperature of the metal while bonding;

wherein bonding comprises providing particles of the metal on the two components and bonding the metal particles; ~~and~~

wherein bonding the metal particles comprises applying pressure to the metal particles;

wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

27. (currently amended) A method of bonding two components, the method comprising:
positioning the two components relative to one another to obtain a desired orientation;
and

bonding the two components in the desired orientation with metal wherein a temperature of both components is maintained below a melting temperature of the metal while bonding;

wherein bonding comprises providing particles of the metal on the two components and bonding the metal particles; and

wherein bonding the metal particles comprises plating a metal ~~thereon~~ on the metal particles after providing the metal particles on the two components.

28. (currently amended) A method of bonding two components, the method comprising:
positioning the two components relative to one another to obtain a desired orientation;
and

bonding the two components in the desired orientation with metal wherein a temperature of both components is maintained below a melting temperature of the metal while bonding;

wherein bonding comprises providing particles of the metal on the two components and bonding the metal particles; and

wherein bonding the metal particles comprises providing a solution of a second metal on the metal particles to initiate a displacement reaction.

29. (currently amended) A method of bonding two components, the method comprising:
providing particles of a metal on at least one of the two components and vibrating the
particles; then

positioning the two components relative to one another to obtain a desired orientation
wherein positioning the two components comprises positioning the two components while
vibrating the particles; and

bonding the two components in the desired orientation with metal wherein a temperature
of both components is maintained below a melting temperature of the metal while bonding
wherein bonding the two components comprises ceasing vibrating the particles.

30. (currently amended) A method according to Claim 1 wherein a first one of the two
components comprises a substrate.

31. (currently amended) A method according to Claim 30 wherein a second one of the
two components comprises one of a micro-electronic component, a micro-optical component, or
a micro-mechanical component.

32. (original) A method according to Claim 30 wherein the substrate comprises one of a
dam thereon or a well therein.

33. (currently amended) A method of bonding two components, the method comprising:
positioning the two components relative to one another to obtain a desired orientation;
and

bonding the two components in the desired orientation with metal wherein a temperature
of both components is maintained below a melting temperature of the metal while bonding and
wherein a temperature of the metal is maintained below a melting temperature of the metal while
bonding;

wherein at least one of the two components comprises a micro-electronic component, an
optical component, and/or a micro-mechanical component.

Claims 34-67 (canceled).

68. (new) A method according to Claim 26 wherein at least one of the two components comprises an optical component.

69. (new) A method according to Claim 33 wherein at least one of the two components comprises an optical component.

70. (new) A method according to Claim 1 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

71. (new) A method according to Claim 5 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

72. (new) A method according to Claim 5 wherein at least one of the two components comprises an optical component.

73. (new) A method according to Claim 7 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

74. (new) A method according to Claim 7 wherein at least one of the two components comprises an optical component.

75. (new) A method according to Claim 12 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

76. (new) A method according to Claim 12 wherein at least one of the two components comprises an optical component.

77. (new) A method according to Claim 15 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

78. (new) A method according to Claim 15 wherein at least one of the two components comprises an optical component.

79. (new) A method according to Claim 18 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

80. (new) A method according to Claim 18 wherein at least one of the two components comprises an optical component.

81. (new) A method according to Claim 19 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

82. (new) A method according to Claim 19 wherein at least one of the two components comprises an optical component.

83. (new) A method according to Claim 20 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

84. (new) A method according to Claim 20 wherein at least one of the two components comprises an optical component.

85. (new) A method according to Claim 21 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

86. (new) A method according to Claim 21 wherein at least one of the two components comprises an optical component.

87. (new) A method according to Claim 23 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

88. (new) A method according to Claim 23 wherein at least one of the two components comprises an optical component.

89. (new) A method according to Claim 27 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

90. (new) A method according to Claim 27 wherein at least one of the two components comprises an optical component.

91. (new) A method according to Claim 28 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

92. (new) A method according to Claim 28 wherein at least one of the two components comprises an optical component.

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93. (new) A method according to Claim 29 wherein at least one of the two components comprises a micro-electronic component, an optical component, and/or a micro-mechanical component.

94. (new) A method according to Claim 29 wherein at least one of the two components comprises an optical component.